Global LCD Panel Exchange Center www.panelook.com 屏库:全球液晶屏交易中心

CHI MEI OPTOELECTRONICS CORP.

Issued Date: July. 01, 2009
Model No.: V315B5 – LN1
**Tentative**

# TFT LCD Tentative Specification

# MODEL NO.: V315B5 – LN1

www.panelook.com

| | | |
|---|---|---|
| Approved By | TV Product Marketing & Management Div | |
| | Chao-Chun Chung | |
| Reviewed By | QA Dept. | Product Development Div. |
| | Hsin-nan Chen | WT Lin |
| Prepared By | LCD TV Marketing and Product Management Div. | |
| | CY Chang Chiang_Liu | |



**Version 0.1**

One step solution for LCD / PDP / OLED panel application: Datasheet, inventory and accessory! www.panelook.com

Global LCD Panel Exchange Center www.panelook.com 屏库:全球液晶屏交易中心



# CONTENTS -

REVISION HISTORY ---------- 3

1. GENERAL DESCRIPTION ---------- 4
   1.1 OVERVIEW
   1.2 FEATURES
   1.3 APPLICATION
   1.4 GENERAL SPECIFICATIONS
   1.5 MECHANICAL SPECIFICATIONS

2. ABSOLUTE MAXIMUM RATINGS ---------- 5
   2.1 ABSOLUTE RATINGS OF ENVIRONMENT
   2.2 PACKAGE STORAGE
   2.3ELECTRICAL ABSOLUTE RATINGS
      2.3.1 TFT LCD MODULE
      2.3.2 BACKLIGHT UNIT

3. ELECTRICAL CHARACTERISTICS ---------- 7
   3.1 TFT LCD MODULE
   3.2 BACKLIGHT INVERTER UNIT
      3.2.1 CCFL(Cold Cathode Fluorescent Lamp) CHARACTERISTICS

4. BLOCK DIAGRAM ---------- 10
   4.1 TFT LCD MODULE

5. INTERFACE PIN CONNECTION ---------- 11
   5.1 TFT LCD MODULE
   5.2 BACKLIGHT UNIT
   5.3 BLOCK DIAGRAM OF INTERFACE
   5.4 LVDS INTERFACE
   5.5 COLOR DATA INPUT ASSIGNMENT

6. INTERFACE TIMING ---------- 16
   6.1 INPUT SIGNAL TIMING SPECIFICATIONS
   6.2 POWER ON/OFF SEQUENCE

7. OPTICAL CHARACTERISTICS ---------- 19
   7.1 TEST CONDITIONS
   7.2 OPTICAL SPECIFICATIONS

8. DEFINITION OF LABELS ---------- 23
   8.1 CMO MODULE LABEL

9. PACKAGING ---------- 25
   9.1 PACKING SPECIFICATIONS
   9.2 PACKING METHOD

10. PRECAUTIONS ---------- 27
   10.1 ASSEMBLY AND HANDLING PRECAUTIONS
   10.2 SAFETY PRECAUTIONS

11. MECHANICAL CHARACTERISTICS ---------- 28

www.panelook.com



One step solution for LCD / PDP / OLED panel application: Datasheet, inventory and accessory! www.panelook.com

Global LCD Panel Exchange Center www.panelook.com 屏库:全球液晶屏交易中心



## REVISION HISTORY

| Version | Date | Page (New) | Section | Description |
|---|---|---|---|---|
| Ver 0.0 | July 01,2009 | All | All | Tentative Specification was first issued. |
| Ver 0.1 | July 16,2009 | P9 | BLU Opt | Modified 3.2 BACKLIGHT INVERTER UNIT |
| | | P11 | EE | Modified 5.1 TFT LCD MODULE |
| | Aug 11,2009 | P9 | BLU Opt | Modified 3.2 BACKLIGHT INVERTER UNIT |
| | | P19 | | Modified 7.1 TEST CONDITIONS |
| | | P28 | ME | Modified 11. MECHANICAL CHARACTERISTICS |
| | | P29 | | |
| | | P30 | | |
| | Aug 21,2009 | P19 | Opt | Modified 7.2 OPTICAL SPECIFICATIONS |
| | | P20 | | |

www.panelook.com



One step solution for LCD / PDP / OLED panel application: Datasheet, inventory and accessory! www.panelook.com

Global LCD Panel Exchange Center www.panelook.com 屏库:全球液晶屏交易中心



# 1. GENERAL DESCRIPTION

## 1.1 OVERVIEW

V315B5- LN1 is a 31.5" TFT Liquid Crystal Display module with 4U-type CCFL Backlight unit and 1ch-LVDS interface. This module supports 1366 x 768 WXGA format and can display 16.7M colors. The inverter module for backlight isn't built-in.

## 1.2 FEATURES

-High brightness (450 nits)
- Ultra-high contrast ratio (3000:1)
- Fast response time (gray to gray average 8.5ms)
- High color saturation NTSC 72%
- Ultra wide viewing angle : 176(H)/176(V) (CR≥20) with Super MVA technology
- DE (Data Enable) only mode
- LVDS (Low Voltage Differential Signaling) interface
- Color reproduction (nature color)

## 1.3 APPLICATION

- TFT LCD TVs
- Multi-Media Display

## 1.4 GENERAL SPECIFICATI0NS

| Item | Specification | Unit | Note |
|---|---|---|---|
| Active Area | 697.6845 (H) x 392.256 (V) (31.51" diagonal) | mm | (1) |
| Bezel Opening Area | 703.8 (H) x 398.4 (V) | mm | |
| Driver Element | a-si TFT active matrix | - | |
| Pixel Number | 1366 x R.G.B. x 768 | pixel | |
| Pixel Pitch (Sub Pixel) | 0.17025(H) x 0.51075 (V) | mm | |
| Pixel Arrangement | RGB vertical stripe | - | |
| Display Colors | 16.7M | color | |
| Display Operation Mode | Transmissive mode / Normally black | - | |
| Surface Treatment | Anti-Glare coating (Haze 11%),Hard coating (3H) | - | |

## 1.5 MECHANICAL SPECIFICATIONS

| Item | | Min. | Typ. | Max. | Unit | Note |
|---|---|---|---|---|---|---|
| Module Size | Horizontal(H) | 759 | 760 | 761 | mm | (1) |
| | Vertical(V) | 449 | 450 | 451 | mm | (1) |
| | Depth(D) | 31.5 | 32.5 | 33.5 | mm | To Rear |
| | Depth(D) | 49.2 | 50.2 | 51.2 | mm | To inverter cover |
| Weight | | -- | 5050 | -- | g | |

Note (1) Please refer to the attached drawings for more information of front and back outline dimensions.



One step solution for LCD / PDP / OLED panel application: Datasheet, inventory and accessory! www.panelook.com

Global LCD Panel Exchange Center www.panelook.com 屏库:全球液晶屏交易中心



## 2. ABSOLUTE MAXIMUM RATINGS

### 2.1 ABSOLUTE RATINGS OF ENVIRONMENT

| Item | Symbol | Value | | Unit | Note |
|---|---|---|---|---|---|
| | | Min. | Max. | | |
| Storage Temperature | $T_{ST}$ | -20 | +60 | ºC | (1) |
| Operating Ambient Temperature | $T_{OP}$ | 0 | +50 | ºC | (1), (2) |
| Shock (Non-Operating) | $S_{NOP}$ | - | 50 | G | (3), (5) |
| Vibration (Non-Operating) | $V_{NOP}$ | - | 1.0 | G | (4), (5) |

Note (1) Temperature and relative humidity range is shown in the figure below.

(a) 90 %RH Max. (Ta ≦ 40 ºC).

(b) Wet-bulb temperature should be 39 ºC Max. (Ta > 40 ºC).

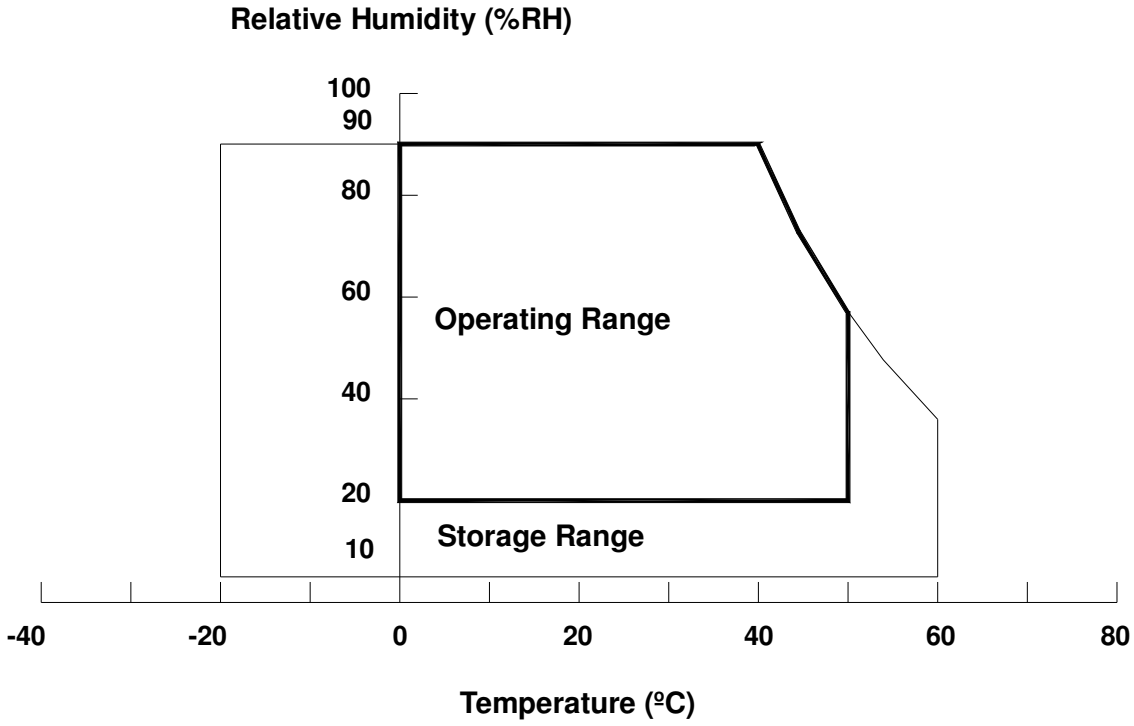
(c) No condensation.

Note (2) The maximum operating temperature is based on the test condition that the surface temperature of display area is less than or equal to 65 ºC with LCD module alone in a temperature controlled chamber. Thermal management should be considered in final product design to prevent the surface temperature of display area from being over 65 ºC. The range of operating temperature may degrade in case of improper thermal management in final product design.

Note (3) 11 ms, half sine wave, 1 time for ± X, ± Y, ± Z.

Note (4) 10 ~ 200 Hz, 10 min, 1 time each X, Y, Z.

Note (5) At testing Vibration and Shock, the fixture in holding the module has to be hard and rigid enough so that the module would not be twisted or bent by the fixture.






One step solution for LCD / PDP / OLED panel application: Datasheet, inventory and accessory! www.panelook.com

Global LCD Panel Exchange Center www.panelook.com 屏库:全球液晶屏交易中心



## 2.2 Package storage

When storing modules as spares for a long time, the following precaution is necessary.

(a) Do not leave the module in high temperature, and high humidity for a long time. It is highly recommended to store the module with temperature from 0 to 35℃at normal humidity without condensation.

(b)The module shall be stored in dark place. Do not store the TFT-LCD module in direct sunlight or fluorescent light.

## 2.3 ELECTRICAL ABSOLUTE RATINGS

### 2.3.1 TFT LCD MODULE

| Item | Symbol | Value | | Unit | Note |
|---|---|---|---|---|---|
| | | Min. | Max. | | |
| Power Supply Voltage | Vcc | -0.3 | 13.0 | V | (1) |
| Input Signal Voltage | $V_{IN}$ | -0.3 | 3.6 | V | |

### 2.3.2 BACKLIGHT UNIT

| Item | Symbol | Value | | Unit | Note |
|---|---|---|---|---|---|
| | | Min. | Max. | | |
| Lamp Voltage | $V_W$ | — | 3000 | $V_{RMS}$ | |
| Power Supply Voltage | $V_{BL}$ | 0 | 30 | V | (1) |
| Control Signal Level | — | -0.3 | 7 | V | (1), (3) |

Note (1) Permanent damage to the device may occur if maximum values are exceeded. Functional operation should be restricted to the conditions described under normal operating conditions.

Note (2) No moisture condensation or freezing.

www.panelook.com



One step solution for LCD / PDP / OLED panel application: Datasheet, inventory and accessory! www.panelook.com

Global LCD Panel Exchange Center www.panelook.com 屏库:全球液晶屏交易中心



## 3. ELECTRICAL CHARACTERISTICS

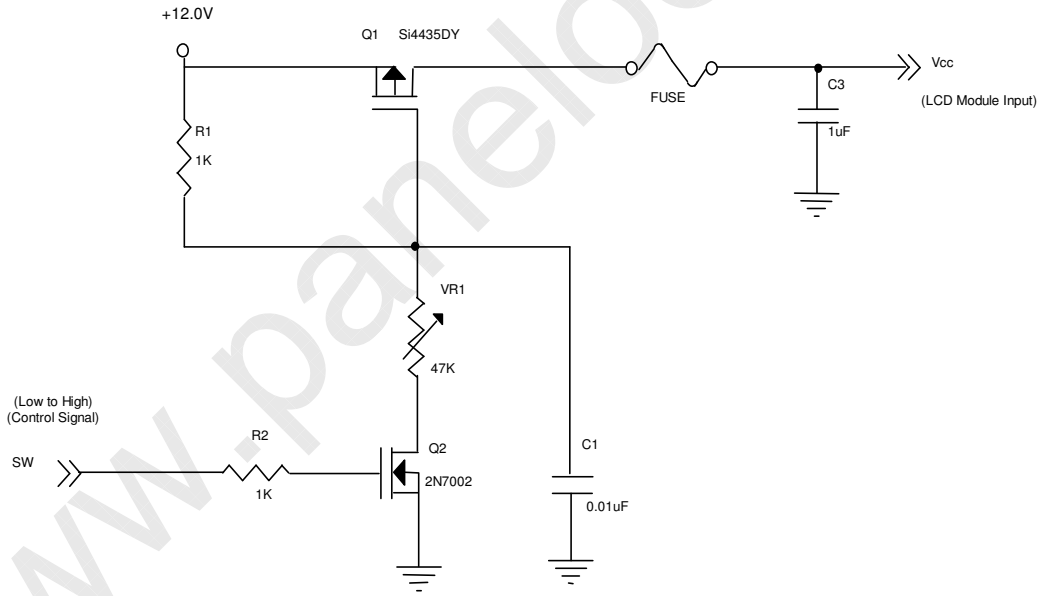
### 3.1 TFT LCD MODULE

Ta = 25 ± 2 ºC

| Parameter | | Symbol | Value | | | Unit | Note |
|---|---|---|---|---|---|---|---|
| | | | Min. | Typ. | Max. | | |
| Power Supply Voltage | | $V_{CC}$ | 11.4 | 12.0 | 12.6 | V | (1) |
| Power Supply Ripple Voltage | | $V_{RP}$ | - | - | 100 | mV | |
| Rush Current | | $I_{RUSH}$ | - | - | (3.5) | A | (2) |
| Power Supply Current | White | $I_{CC}$ | - | (0.52) | (0.52) | A | (3) |
| | Black | | | (0.32) | - | A | |
| | Vertical Stripe | | - | (0.43) | - | A | |
| LVDS Interface | Differential Input High Threshold Voltage | $V_{LVTH}$ | +100 | - | | mV | |
| | Differential Input Low Threshold Voltage | $V_{LVTL}$ | | - | -100 | mV | |
| | Common Input Voltage | $V_{LVC}$ | 1.125 | 1.25 | 1.375 | V | |
| | Terminating Resistor | $R_T$ | - | 100 | - | ohm | |
| CMOS interface | Input High Threshold Voltage | $V_{IH}$ | 2.7 | - | 3.3 | V | |
| | Input Low Threshold Voltage | $V_{IL}$ | 0 | - | 0.7 | V | |

Note (1) The module should be always operated within above ranges.

Note (2) Measurement Conditions:




www.panelook.com

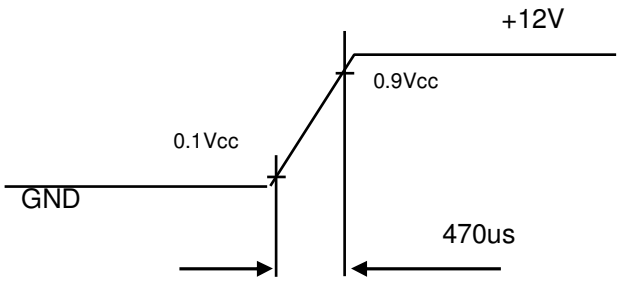


One step solution for LCD / PDP / OLED panel application: Datasheet, inventory and accessory! www.panelook.com

Global LCD Panel Exchange Center www.panelook.com 屏库:全球液晶屏交易中心

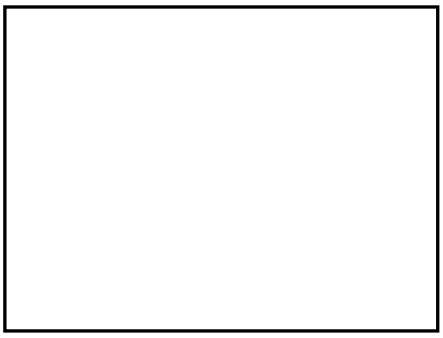


**Vcc rising time is 470us**




Note (3) The specified power supply current is under the conditions at Vcc =12V, Ta = 25 ± 2 ºC, $f_v$ = 60 Hz, whereas a power dissipation check pattern below is displayed.

a. White Pattern

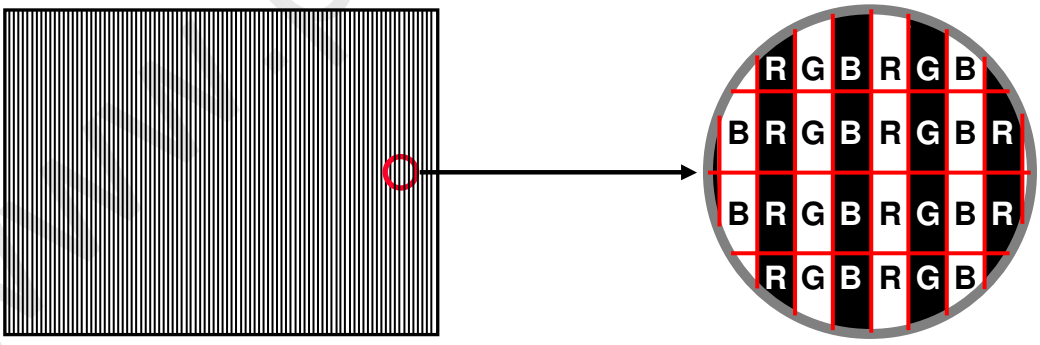


Active Area

b. Black Pattern

Active Area

c. Vertical Stripe Pattern




Active Area



One step solution for LCD / PDP / OLED panel application: Datasheet, inventory and accessory! www.panelook.com

Global LCD Panel Exchange Center www.panelook.com 屏库:全球液晶屏交易中心



## 3.2 BACKLIGHT INVERTER UNIT

### 3.2.1 CCFL (Cold Cathode Fluorescent Lamp) CHARACTERISTICS (Ta = 25 ± 2 ºC)

| Parameter | Symbol | Value | | | Unit | Note |
|---|---|---|---|---|---|---|
| | | Min. | Typ. | Max. | | |
| Lamp Voltage | $V_W$ | - | 1550 | - | $V_{RMS}$ | $I_L$ = 11.5mA |
| Lamp Current | $I_L$ | 6.0 | 11.5 | 12.0 | $mA_{RMS}$ | (1)Hot side |
| Lamp Starting Voltage | $V_S$ | - | - | 2700 | $V_{RMS}$ | (2), Ta = 0 ºC |
| | | - | - | 2290 | $V_{RMS}$ | (2), Ta = 25 ºC |
| Operating Frequency | $F_O$ | 30 | - | 80 | KHz | (3) |
| Lamp Life Time | $L_{BL}$ | 50,000 | | - | Hrs | (4) |

**Note (1)** The lamp starting voltage $V_S$ should be applied to the lamp for more than 1 second under starting up duration. Otherwise the lamp could not be lighted on completed.

**Note (2)** The lamp frequency may produce interference with horizontal synchronous frequency of the display input signals, and it may result in line flow on the display. In order to avoid interference, the lamp frequency should be detached from the horizontal synchronous frequency and its harmonics as far as possible.

**Note (3)** The life time of a lamp is defined as when the brightness is larger than 50% of its original value and the effective discharge length is longer than 80% of its original length (Effective discharge length is defined as an area that has equal to or more than 70% brightness compared to the brightness at the center point of lamp.) as the time in which it continues to operate under the condition at Ta = 25 ±2 ℃ and $I_L$ = 6.0~12.0 $mA_{RMS}$.

**Note (4)** The power supply capacity should be higher than the total inverter power consumption $P_{BL}$. Since the pulse width modulation (PWM) mode was applied for backlight dimming, the driving current changed as PWM duty on and off. The transient response of power supply should be considered for the changing loading when inverter dimming.

www.panelook.com



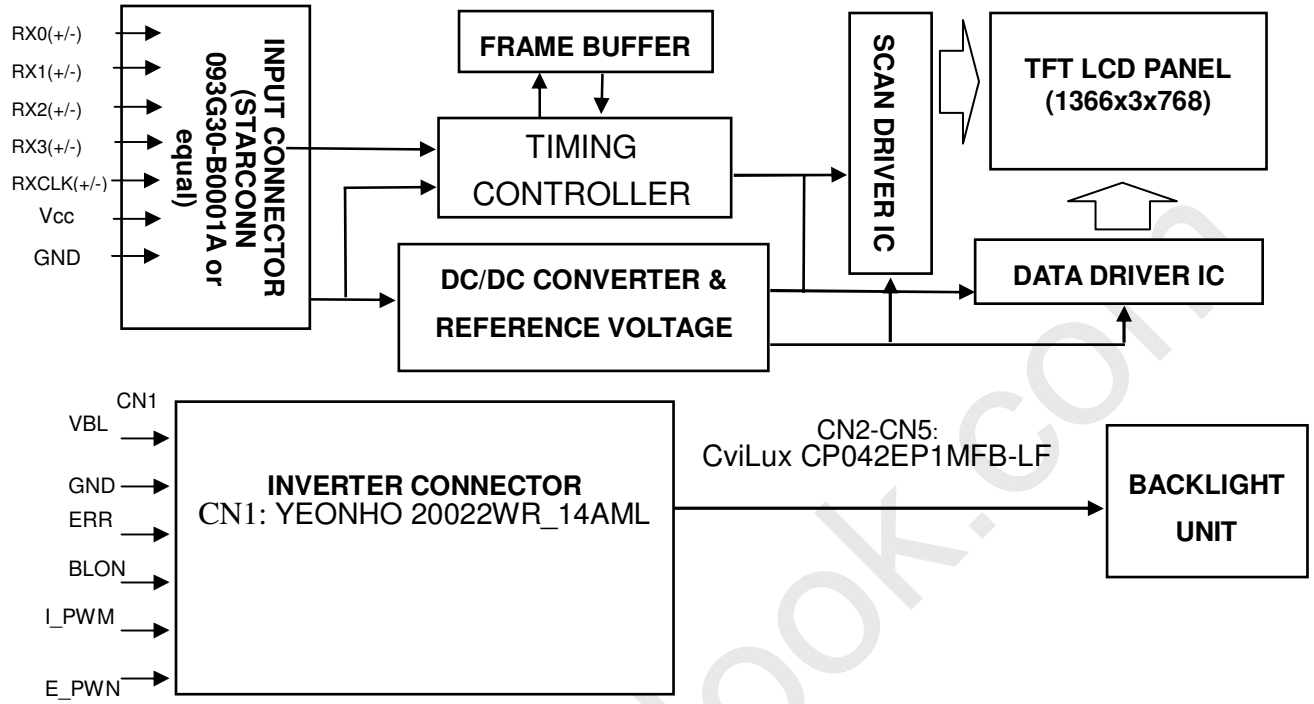
One step solution for LCD / PDP / OLED panel application: Datasheet, inventory and accessory! www.panelook.com

Global LCD Panel Exchange Center www.panelook.com 屏库:全球液晶屏交易中心



## 4. BLOCK DIAGRAM

### 4.1 TFT LCD MODULE




www.panelook.com



One step solution for LCD / PDP / OLED panel application: Datasheet, inventory and accessory! www.panelook.com

Global LCD Panel Exchange Center www.panelook.com 屏库:全球液晶屏交易中心



# 5. INTERFACE PIN CONNECTION

## 5.1 TFT LCD MODULE

**CNF1 Connector Pin Assignment**

| Pin No. | Symbol | Description | Note |
|---|---|---|---|
| 1 | VCC | Power supply: +12V | |
| 2 | VCC | Power supply: +12V | |
| 3 | VCC | Power supply: +12V | |
| 4 | VCC | Power supply: +12V | |
| 5 | GND | Ground | |
| 6 | GND | Ground | |
| 7 | GND | Ground | |
| 8 | NC | No connection | |
| 9 | SELLVDS | Select LVDS data format | (2) |
| 10 | ODSEL | Overdrive Lookup Table Selection | (3) |
| 11 | GND | Ground | |
| 12 | RX0- | Negative transmission data of pixel 0 | |
| 13 | RX0+ | Positive transmission data of pixel 0 | |
| 14 | GND | Ground | |
| 15 | RX1- | Negative transmission data of pixel 1 | |
| 16 | RX1+ | Positive transmission data of pixel 1 | |
| 17 | GND | Ground | |
| 18 | RX2- | Negative transmission data of pixel 2 | |
| 19 | RX2+ | Positive transmission data of pixel 2 | |
| 20 | GND | Ground | |
| 21 | RXCLK- | Negative of clock | |
| 22 | RXCLK+ | Positive of clock | |
| 23 | GND | Ground | |
| 24 | RX3- | Negative transmission data of pixel 3 | |
| 25 | RX3+ | Positive transmission data of pixel 3 | |
| 26 | GND | Ground | |
| 27 | NC | No connection | (4) |
| 28 | NC | No connection | (4) |
| 29 | NC | No connection | |
| 30 | GND | Ground | |

Note (1) Connector type: STARCONN 093G30-B0001A or Faxconn GS23302-1311S-7F or compatible

Note (2) Ground or OPEN: VESA, High: JEIDA LVDS format

Please refer to 5.5 LVDS INTERFACE

Note (3) Overdrive lookup table selection. The Overdrive lookup table should be selected in accordance to the frame rate to optimize image quality.

| ODSEL | Note |
|---|---|
| L or Open | Lookup table was optimized for 60 Hz frame rate. |
| H | Lookup table was optimized for 50 Hz frame rate. |

Note (4) Reserved for internal use. Left it open.



One step solution for LCD / PDP / OLED panel application: Datasheet, inventory and accessory! www.panelook.com

Global LCD Panel Exchange Center www.panelook.com 屏库:全球液晶屏交易中心



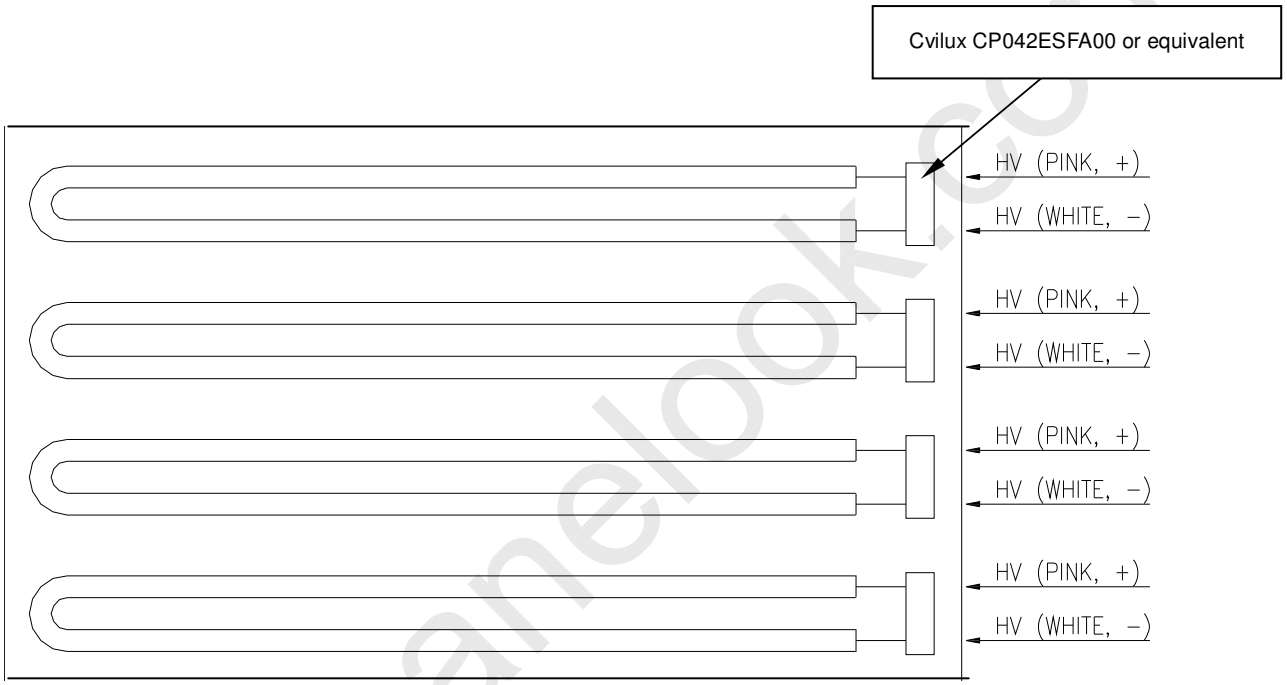
## 5.2 BACKLIGHT UNIT

The pin configuration for the housing and leader wire is shown in the table below.

CN2-CN5 (Housing): Cvilux CP042ESFA00 or equivalent

| Pin No. | Symbol | Description | Wire Color |
|---|---|---|---|
| 1 | HV | High Voltage | PINK |
| 2 | HV | High Voltage | WHITE |

Note (1) The backlight interface housing for high voltage side is Cvilux CP042ESFA00 or equivalent. The mating header on inverter part number is Cvilux CP042EP1MFB-LF or equivalent




www.panelook.com

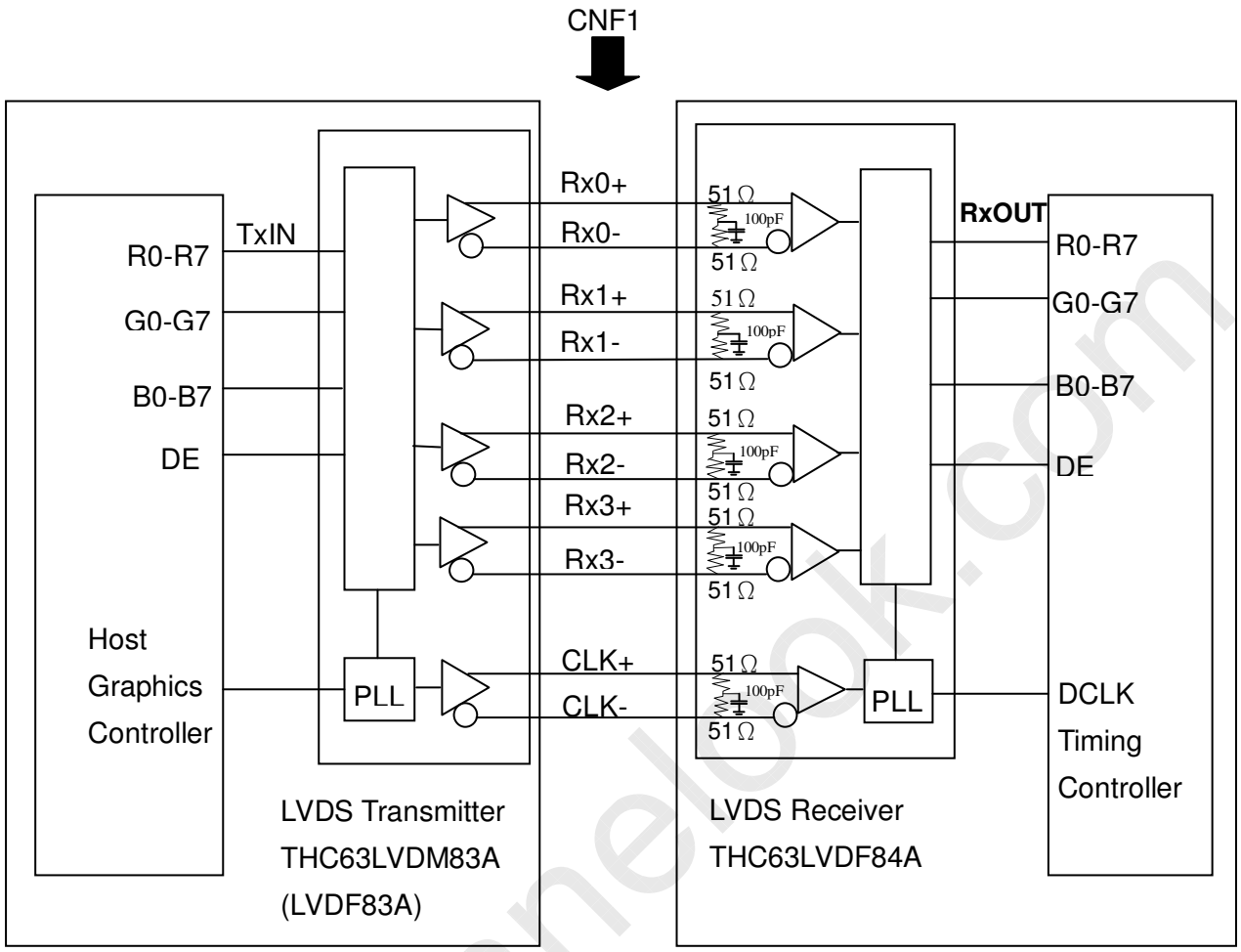


One step solution for LCD / PDP / OLED panel application: Datasheet, inventory and accessory! www.panelook.com

Global LCD Panel Exchange Center www.panelook.com 屏库:全球液晶屏交易中心



### 5.3 BLOCK DIAGRAM OF INTERFACE




R0~R7 : Pixel R Data ,
G0~G7 : Pixel G Data ,
B0~B7 : Pixel B Data ,
DE : Data enable signal

Note (1) The system must have the transmitter to drive the module.

Note (2) LVDS cable impedance shall be 50 ohms per signal line or about 100 ohms per twist-pair line when it is used differentially.

www.panelook.com



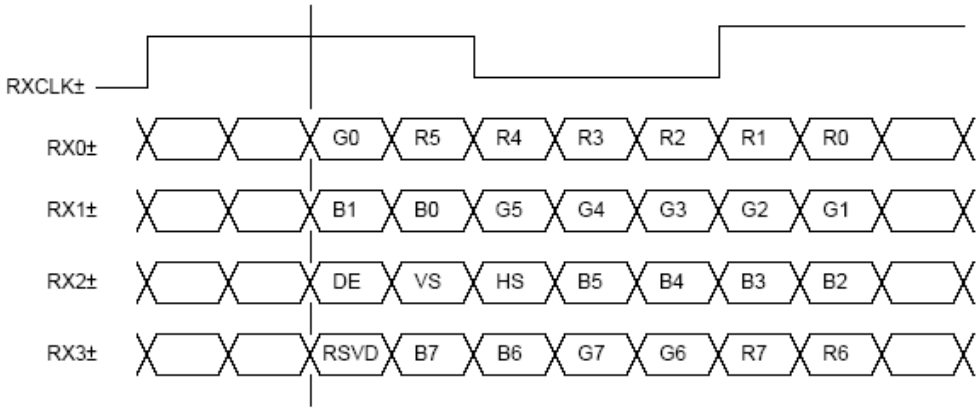
One step solution for LCD / PDP / OLED panel application: Datasheet, inventory and accessory! www.panelook.com

Global LCD Panel Exchange Center www.panelook.com 屏库:全球液晶屏交易中心

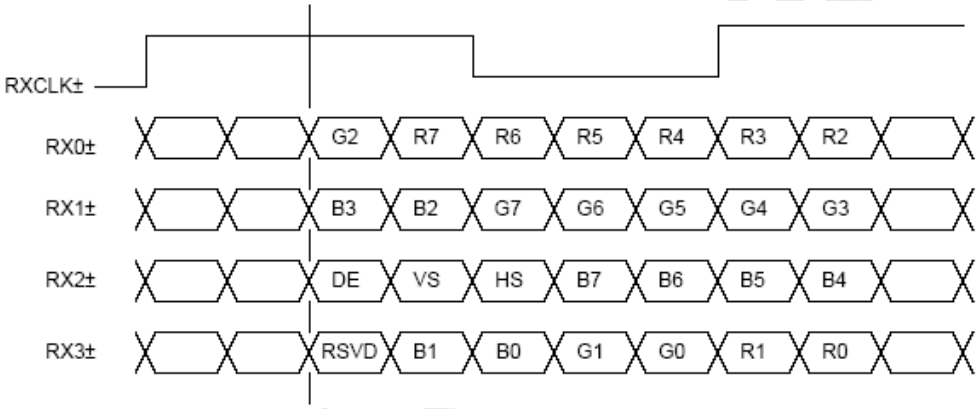


### 5.4 LVDS INTERFACE

**SELLVDS = L or Open (VESA)**




**SELLVDS = H (JEIDA)**




R0~R7: Pixel R Data (7; MSB, 0; LSB)

G0~G7: Pixel G Data (7; MSB, 0; LSB)

B0~B7: Pixel B Data (7; MSB, 0; LSB)

DE: Data enable signal

Notes(1) RSVD(reserved)pins on the transmitter shall be “H” or( “L” or OPEN)



One step solution for LCD / PDP / OLED panel application: Datasheet, inventory and accessory! www.panelook.com

Global LCD Panel Exchange Center www.panelook.com 屏库:全球液晶屏交易中心



### 5.5 COLOR DATA INPUT ASSIGNMENT

The brightness of each primary color (red, green and blue) is based on the 8-bit gray scale data input for the color. The higher the binary input, the brighter the color. The table below provides the assignment of color versus data input.

| Color | | Data Signal | | | | | | | | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | Red | | | | | | | | Green | | | | | | | | Blue | | | | | | | |
| | | R7 | R6 | R5 | R4 | R3 | R2 | R1 | R0 | G7 | G6 | G5 | G4 | G3 | G2 | G1 | G0 | B7 | B6 | B5 | B4 | B3 | B2 | B1 | B0 |
| Basic Colors | Black | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| | Red | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| | Green | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| | Blue | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 |
| | Cyan | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 |
| | Magenta | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 |
| | Yellow | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| | White | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 |
| Gray Scale Of Red | Red(0) / Dark | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| | Red(1) | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| | Red(2) | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : |
| | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : |
| | Red(253) | 1 | 1 | 1 | 1 | 1 | 1 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| | Red(254) | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| | Red(255) | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Gray Scale Of Green | Green(0) / Dark | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| | Green(1) | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| | Green(2) | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : |
| | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : |
| | Green(253) | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 1 | 1 | 1 | 1 | 1 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| | Green(254) | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| | Green(255) | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Gray Scale Of Blue | Blue(0) / Dark | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| | Blue(1) | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 |
| | Blue(2) | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 |
| | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : |
| | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : |
| | Blue(253) | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 1 | 1 | 1 | 1 | 1 | 0 | 1 |
| | Blue(254) | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 0 |
| | Blue(255) | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 |

Note (1) 0: Low Level Voltage, 1: High Level Voltage



One step solution for LCD / PDP / OLED panel application: Datasheet, inventory and accessory! www.panelook.com

Global LCD Panel Exchange Center www.panelook.com 屏库:全球液晶屏交易中心



# 6. INTERFACE TIMING

## 6.1 INPUT SIGNAL TIMING SPECIFICATIONS

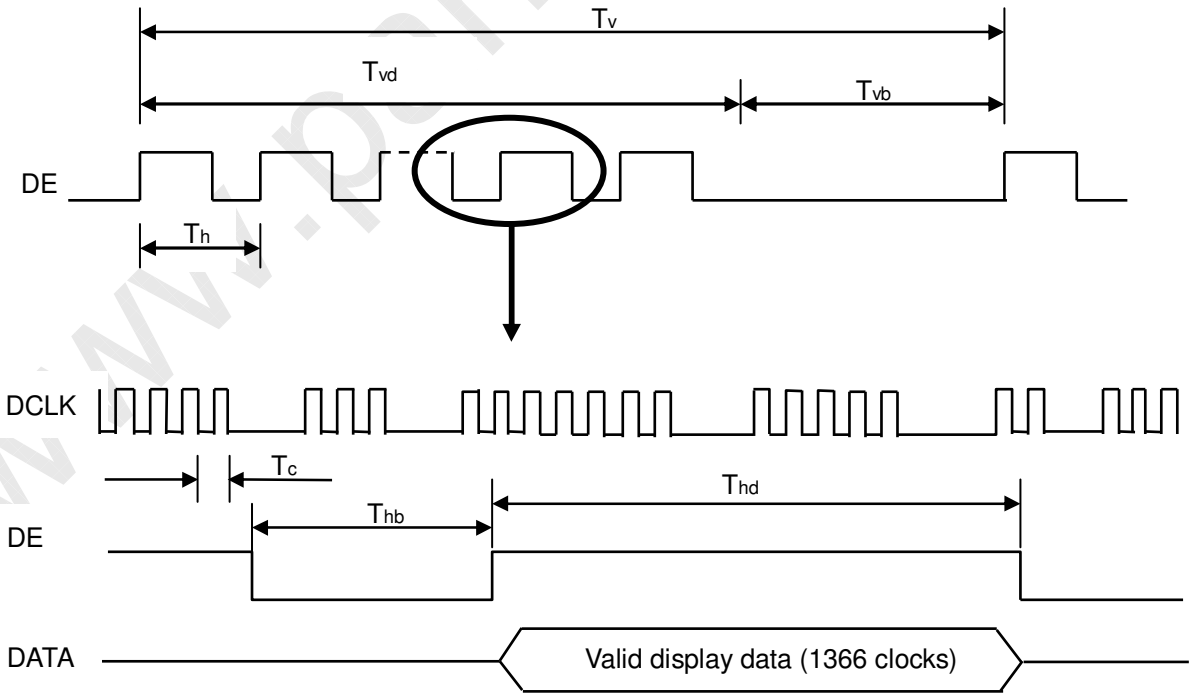
The input signal timing specifications are shown as the following table and timing diagram.

| Signal | Item | Symbol | Min. | Typ. | Max. | Unit | Note |
|---|---|---|---|---|---|---|---|
| LVDS Receiver Clock | Frequency | 1/Tc | 60 | 76 | 82 | MHz | |
| | Input cycle to cycle jitter | Trcl | - | - | 200 | ps | |
| LVDS Receiver Data | Setup Time | Tlvsu | 600 | - | - | ps | |
| | Hold Time | Tlvhd | 600 | - | - | ps | |
| Vertical Active Display Term | Frame Rate | Fr5 | 47 | 50 | 53 | Hz | (2) |
| | | Fr6 | 57 | 60 | 63 | Hz | |
| | Total | Tv | 778 | 806 | 888 | Th | Tv=Tvd+Tvb |
| | Display | Tvd | 768 | 768 | 768 | Th | - |
| | Blank | Tvb | 10 | 38 | 120 | Th | - |
| Horizontal Active Display Term | Total | Th | 1442 | 1560 | 1936 | Tc | Th=Thd+Thb |
| | Display | Thd | 1366 | 1366 | 1366 | Tc | - |
| | Blank | Thb | 76 | 194 | 570 | Tc | - |

Note (1) Since this module is operated in DE only mode, Hsync and Vsync input signals should be set to low logic level. Otherwise, this module would operate abnormally.

(2) Please refer to 5.1 for detail information.

**INPUT SIGNAL TIMING DIAGRAM**



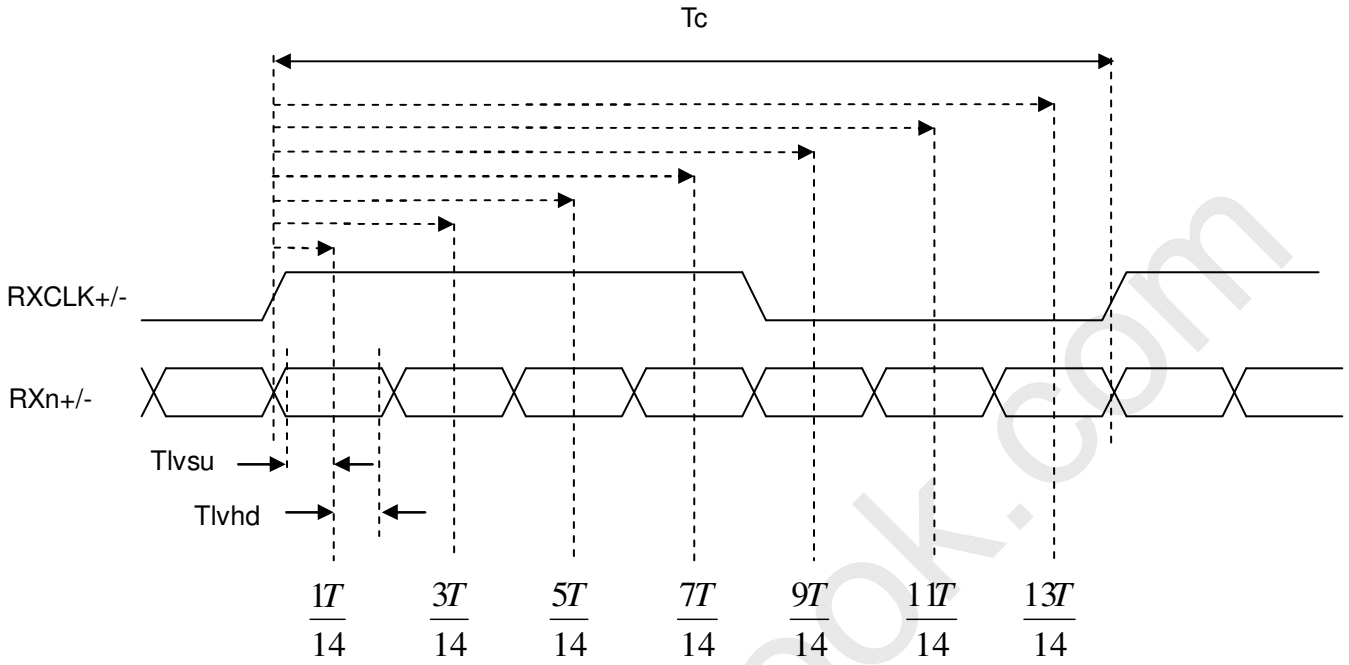



One step solution for LCD / PDP / OLED panel application: Datasheet, inventory and accessory! www.panelook.com

Global LCD Panel Exchange Center www.panelook.com 屏库:全球液晶屏交易中心



## LVDS RECEIVER INTERFACE TIMING DIAGRAM




www.panelook.com



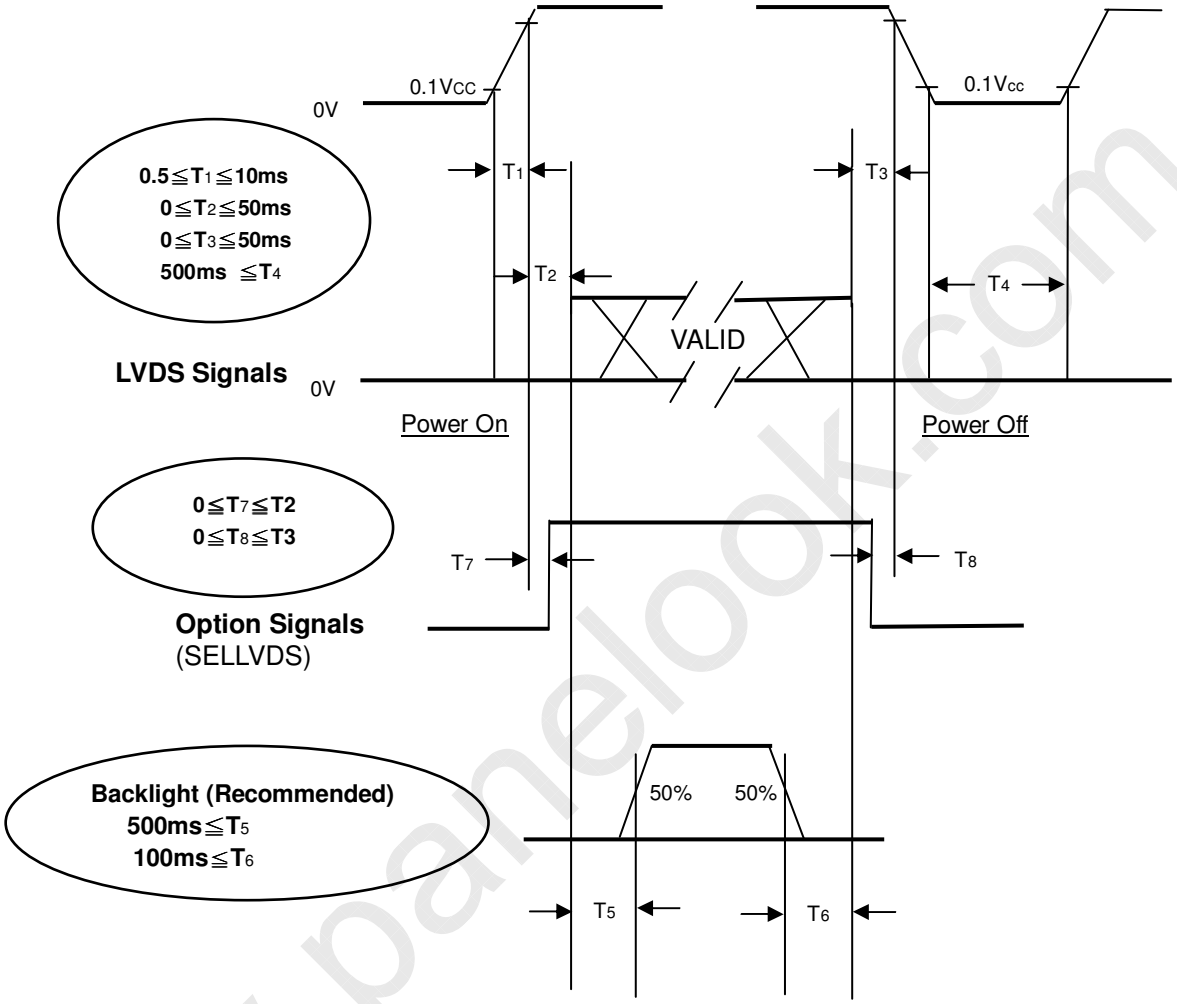
One step solution for LCD / PDP / OLED panel application: Datasheet, inventory and accessory! www.panelook.com

Global LCD Panel Exchange Center www.panelook.com 屏库:全球液晶屏交易中心



### 6.2 POWER ON/OFF SEQUENCE

To prevent a latch-up or DC operation of LCD module, the power on/off sequence should be as the diagram below.




**Power ON/OFF Sequence**

Note (1) The supply voltage of the external system for the module input should follow the definition of Vcc.

Note (2) Apply the lamp voltage within the LCD operation range. When the backlight turns on before the LCD operation or the LCD turns off before the backlight turns off, the display may momentarily become abnormal screen.

Note (3) In case of Vcc is in off level, please keep the level of input signals on the low or high impedance. If T2<0, that maybe cause electrical overstress failures.

Note (4) T4 should be measured after the module has been fully discharged between power off and on period.

Note (5) Interface signal shall not be kept at high impedance when the power is on.



One step solution for LCD / PDP / OLED panel application: Datasheet, inventory and accessory! www.panelook.com

Global LCD Panel Exchange Center www.panelook.com 屏库:全球液晶屏交易中心



# 7. OPTICAL CHARACTERISTICS

## 7.1 TEST CONDITIONS

| Item | Symbol | Value | Unit |
|---|---|---|---|
| Ambient Temperature | Ta | 25±2 | °C |
| Ambient Humidity | Ha | 50±10 | %RH |
| Supply Voltage | $V_{CC}$ | 12.0 | V |
| Input Signal | According to typical value in "3. ELECTRICAL CHARACTERISTICS" | | |
| Lamp Current | $I_L$ | 11.5±0.5 | mA |
| Oscillating Frequency (Inverter) | $F_W$ | 63±3 | KHz |
| Frame rate | Fr | 60 | Hz |

## 7.2 OPTICAL SPECIFICATIONS

The relative measurement methods of optical characteristics are shown in 7.2. The following items should be measured under the test conditions described in 7.1 and stable environment shown in Note (6).

| Item | | Symbol | Condition | Min. | Typ. | Max. | Unit | Note |
|---|---|---|---|---|---|---|---|---|
| Contrast Ratio | | CR | $\theta_x$=0°, $\theta_Y$ =0° Viewing Angle at Normal Direction | 2500 | 3000 | - | - | (2) |
| Response Time | | Gray to gray average | | | 8.5 | 14 | ms | (3) |
| Center Luminance of White | | $L_C$ | | 400 | 450 | - | $cd/m^2$ | (4) |
| White Variation | | δW | | - | - | 1.3 | - | (7) |
| Cross Talk | | CT | | - | - | 4.0 | % | (5) |
| Color Chromaticity | Red | Rx | | Typ -0.03 | (0.647) | Typ +0.03 | - | (6) |
| | | Ry | | | (0.334) | | - | |
| | Green | Gx | | | (0.275) | | - | |
| | | Gy | | | (0.596) | | - | |
| | Blue | Bx | | | (0.143) | | - | |
| | | By | | | (0.068) | | - | |
| | White | Wx | | | (0.285) | | - | |
| | | Wy | | | (0.293) | | - | |
| | Color Gamut | CG | | | 72 | | % | NTSC |
| V)iewing Angle | Horizontal | $\theta_x$+ | CR≥20 | 80 | 88 | - | Deg. | (1) |
| | | $\theta_x$- | | 80 | 88 | - | | |
| | Vertical | $\theta_Y$+ | | 80 | 88 | - | | |
| | | $\theta_Y$- | | 80 | 88 | - | | |

www.panelook.com



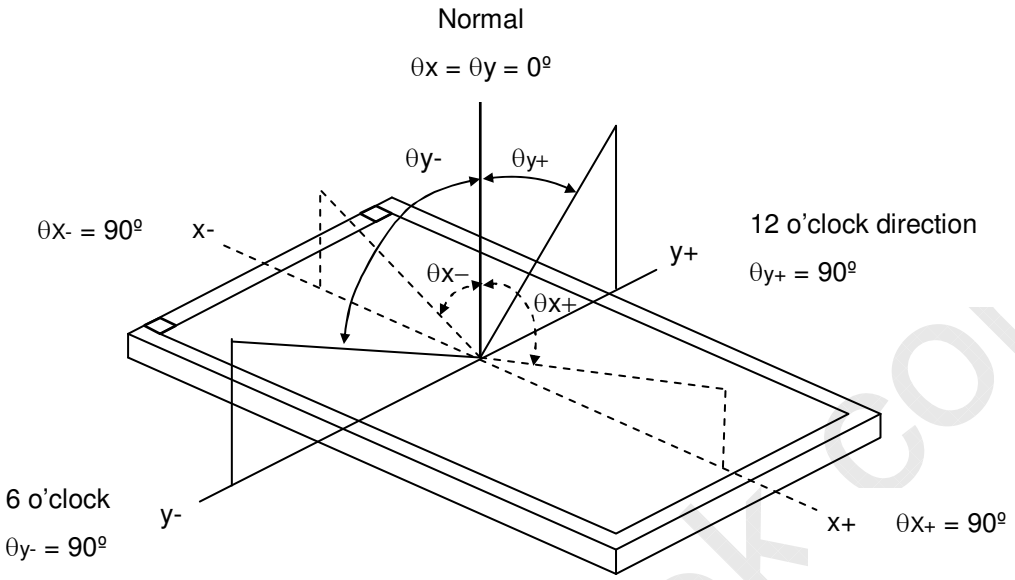
One step solution for LCD / PDP / OLED panel application: Datasheet, inventory and accessory! www.panelook.com

Global LCD Panel Exchange Center www.panelook.com 屏库:全球液晶屏交易中心



Note (1) Definition of Viewing Angle (θx, θy):

Viewing angles are measured by Autronic Conoscope Cono-80.




Note (2) Definition of Contrast Ratio (CR):

The contrast ratio can be calculated by the following expression.

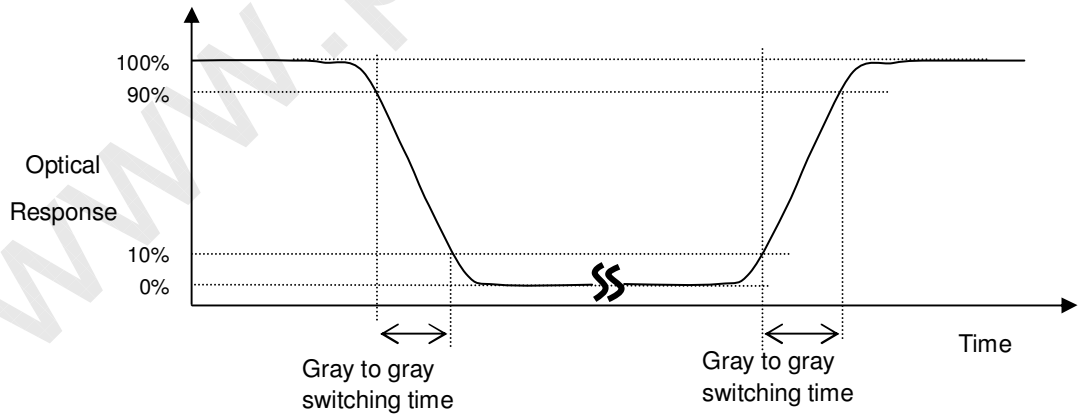
Contrast Ratio (CR) = L255 / L0

L255: Luminance of gray level 255

L 0: Luminance of gray level 0

CR = CR (5), where CR (X) is corresponding to the Contrast Ratio of the point X at the figure in Note (7).

Note (3) Definition of Gray to Gray Switching Time :




The driving signal means the signal of luminance 0%, 20%, 40%, 60%, 80%, 100%.

Gray to gray average time means the average switching time of luminance 0%,20%, 40%, 60%, 80%, 100% to each other.



One step solution for LCD / PDP / OLED panel application: Datasheet, inventory and accessory! www.panelook.com

Global LCD Panel Exchange Center www.panelook.com 屏库:全球液晶屏交易中心



Note (4) Definition of Luminance of White ($L_C$):

Measure the luminance of gray level 255 at center point and 5 points

$L_C = L (5)$

where L (x) is corresponding to the luminance of the point X at the figure in Note (7).

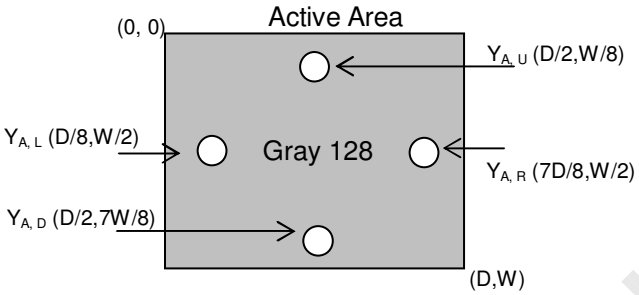
Note (5) Definition of Cross Talk (CT):

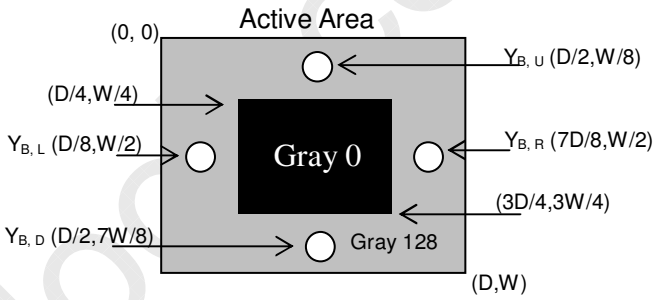
$CT = | YB – YA | / YA \times 100 (\%)$

Where:

$Y_A$ = Luminance of measured location without gray level 0 pattern (cd/m2)

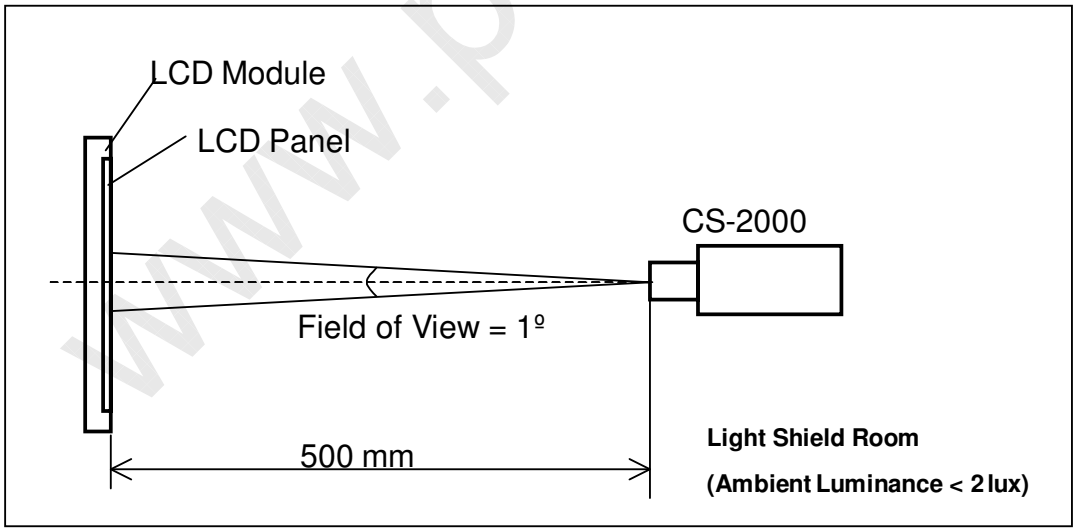
$Y_B$ = Luminance of measured location with gray level 0 pattern (cd/m2)




Note (6) Measurement Setup:

The LCD module should be stabilized at given temperature for 1 hour to avoid abrupt temperature change during measuring. In order to stabilize the luminance, the measurement should be executed after lighting Backlight for 1 hour in a windless room.






One step solution for LCD / PDP / OLED panel application: Datasheet, inventory and accessory! www.panelook.com

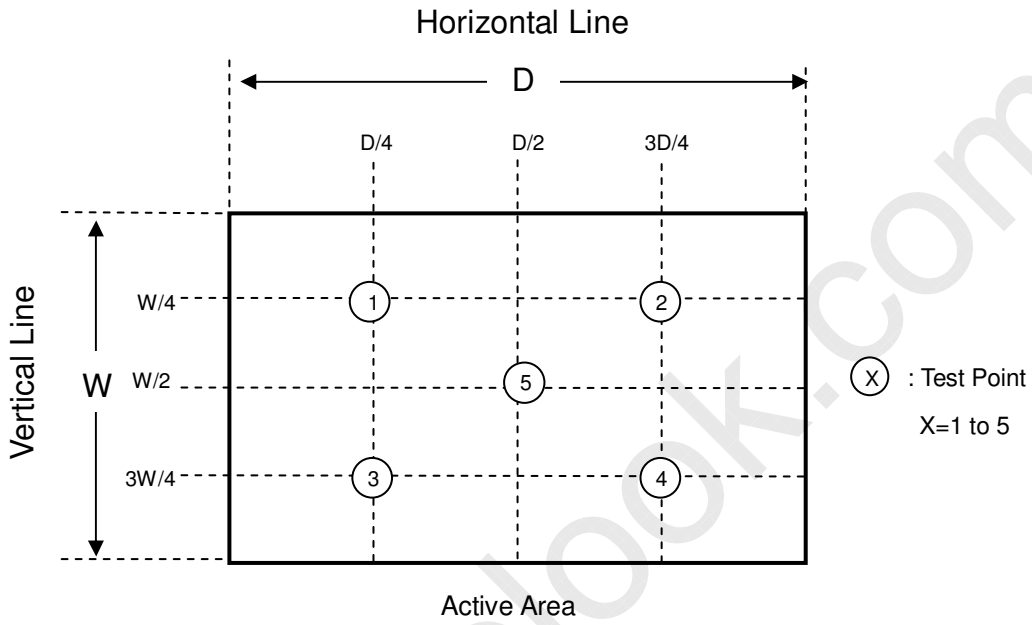
Global LCD Panel Exchange Center www.panelook.com 屏库:全球液晶屏交易中心



Note (7) Definition of White Variation (δW):

Measure the luminance of gray level 255 at 5 points

δW = Maximum [L (1), L (2), L (3), L (4), L (5)] / Minimum [L (1), L (2), L (3), L (4), L (5)]




www.panelook.com



One step solution for LCD / PDP / OLED panel application: Datasheet, inventory and accessory! www.panelook.com

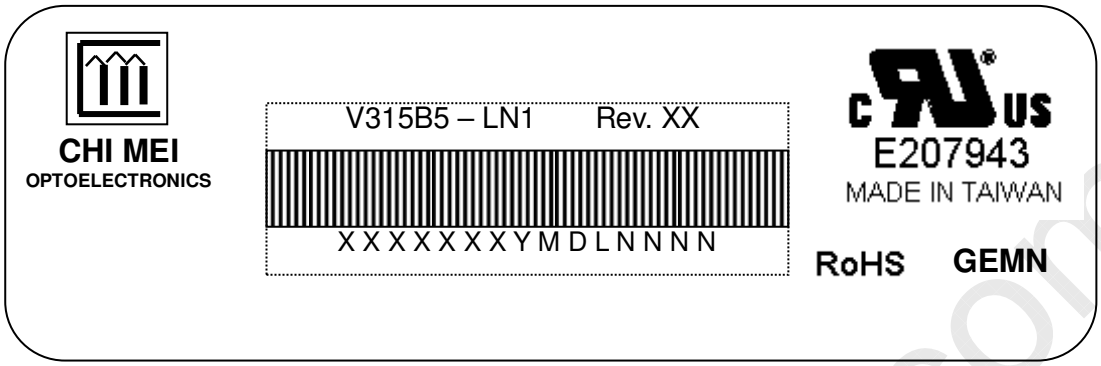
Global LCD Panel Exchange Center www.panelook.com 屏库:全球液晶屏交易中心

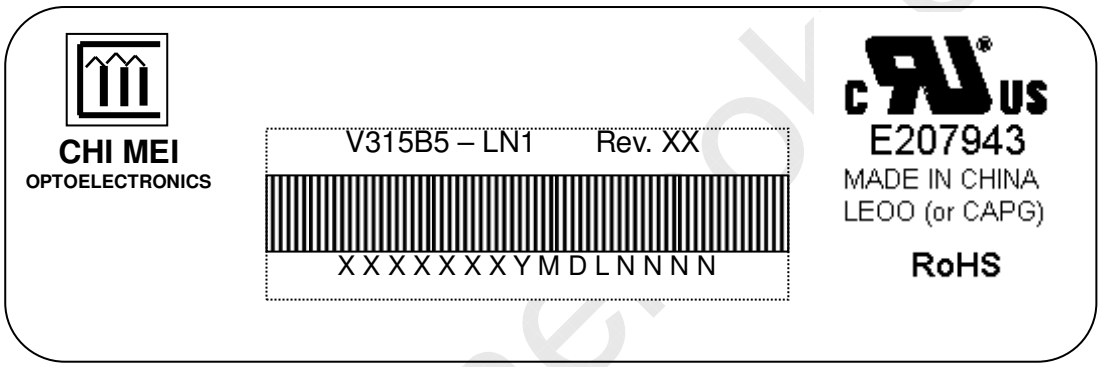


# 8. DEFINITION OF LABELS

## 8.1 CMO MODULE LABEL

The barcode nameplate is pasted on each module as illustration, and its definitions are as following explanation.




(a) Model Name: V315B5-LN1

(b) Revision: Rev. XX, for example: A0, A1… B1, B2… or C1, C2…etc.

(c) Serial ID: X X X X X X X Y M D L N N N N

- Serial No.
- Product Line
- Year, Month, Date
- CMO Internal Use
- CMO Internal Use
- Revision
- CMO Internal Use

www.panelook.com



One step solution for LCD / PDP / OLED panel application: Datasheet, inventory and accessory! www.panelook.com

Global LCD Panel Exchange Center www.panelook.com 屏库:全球液晶屏交易中心



Serial ID includes the information as below:

(a) Manufactured Date: Year: 0~9, for 2000~2009,

Month: 1~9, A~C, for Jan. ~ Dec.

Day: 1~9, A~Y, for 1st to 31st, exclude I ,O, and U.

(b) Revision Code: Cover all the change

(c) Serial No.: Manufacturing sequence of product

(d) Product Line: 1 -> Line1, 2 -> Line 2, …etc.

www.panelook.com



One step solution for LCD / PDP / OLED panel application: Datasheet, inventory and accessory! www.panelook.com

Global LCD Panel Exchange Center www.panelook.com 屏库:全球液晶屏交易中心



# 9. PACKAGING

## 9.1 PACKING SPECIFICATIONS

(1) 5 LCD TV modules / 1 Box

(2) Box dimensions : 826(L) X 376 (W) X 540 (H)

(3) Weight : approximately 29Kg (5 modules per box)

## 9.2 PACKING METHOD

Figures 9-1 and 9-2 are the packing method

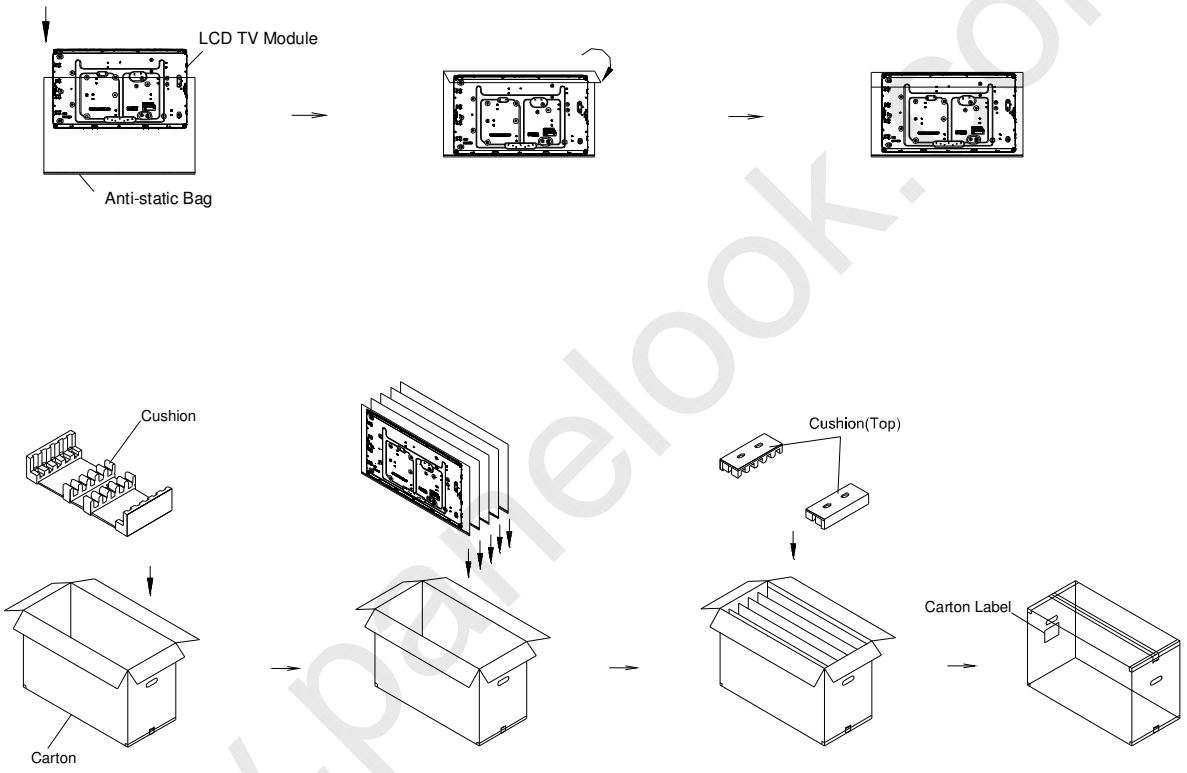



Figure.9-1 packing method

www.panelook.com

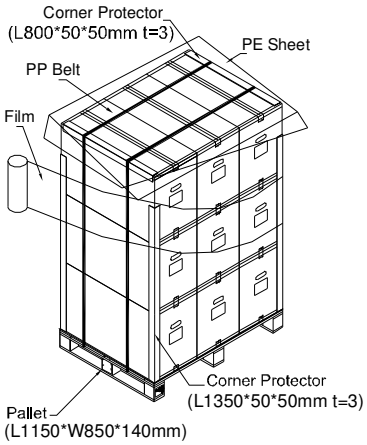


One step solution for LCD / PDP / OLED panel application: Datasheet, inventory and accessory! www.panelook.com

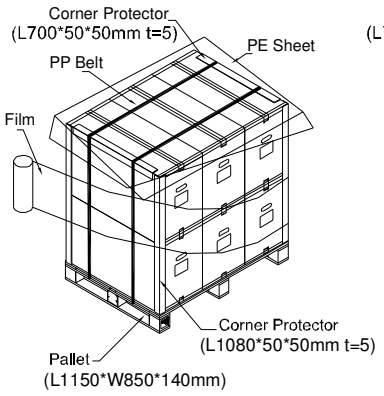
Global LCD Panel Exchange Center www.panelook.com 屏库:全球液晶屏交易中心



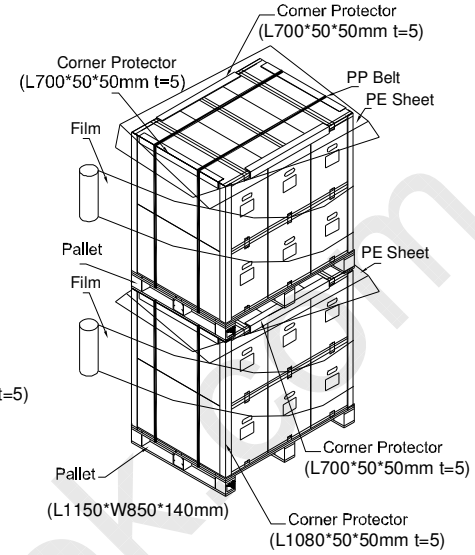
Sea / Land Transportation
(40ft Container)
Gross:276kg




Air Transportation
Gross:189kg




Sea / Land Transportation
(40ft HQ Container)
Gross:378kg




www.panelook.com



One step solution for LCD / PDP / OLED panel application: Datasheet, inventory and accessory! www.panelook.com

Global LCD Panel Exchange Center www.panelook.com 屏库:全球液晶屏交易中心



# 10. PRECAUTIONS

## 10.1 ASSEMBLY AND HANDLING PRECAUTIONS

(1) Do not apply rough force such as bending or twisting to the module during assembly.

(2) It is recommended to assemble or to install a module into the user's system in clean working areas. The dust and oil may cause electrical short or worsen the polarizer.

(3) Do not apply pressure or impulse to the module to prevent the damage of LCD panel and backlight.

(4) Always follow the correct power-on sequence when the LCD module is turned on. This can prevent the damage and latch-up of the CMOS LSI chips.

(5) Do not plug in or pull out the I/F connector while the module is in operation.

(6) Do not disassemble the module.

(7) Use a soft dry cloth without chemicals for cleaning, because the surface of polarizer is very soft and easily scratched.

(8) Moisture can easily penetrate into LCD module and may cause the damage during operation.

(9) High temperature or humidity may deteriorate the performance of LCD module. Please store LCD modules in the specified storage conditions.

(10) When ambient temperature is lower than 10ºC, the display quality might be reduced. For example, the response time will become slow, and the starting voltage of CCFL will be higher than that of room temperature.

## 10.2 SAFETY PRECAUTIONS

(1) The startup voltage of a backlight is over 1000 Volts. It may cause an electrical shock while assembling with the inverter. Do not disassemble the module or insert anything into the backlight unit.

(2) If the liquid crystal material leaks from the panel, it should be kept away from the eyes or mouth. In case of contact with hands, skin or clothes, it has to be washed away thoroughly with soap.

(3) After the module's end of life, it is not harmful in case of normal operation and storage.

www.panelook.com

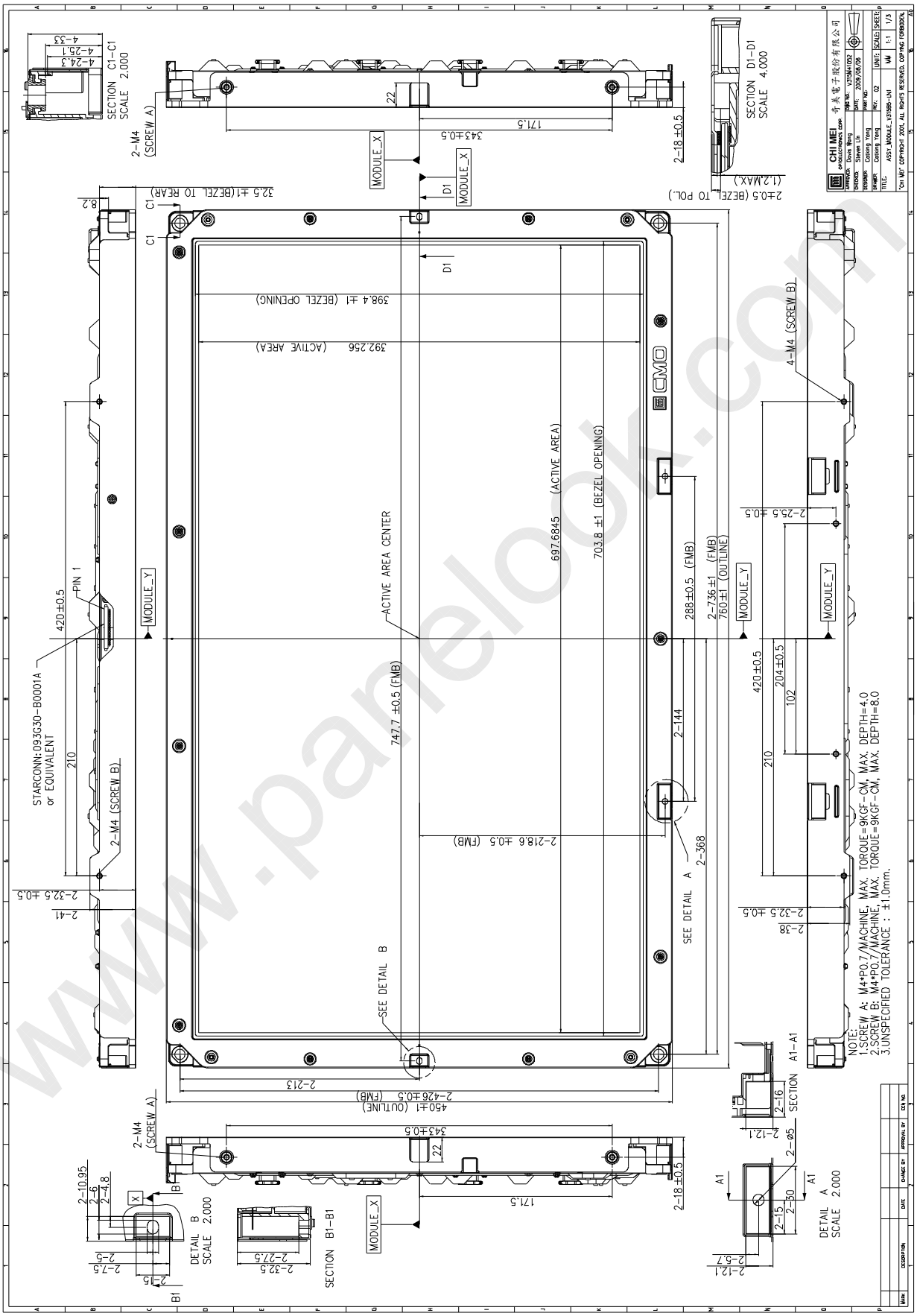


One step solution for LCD / PDP / OLED panel application: Datasheet, inventory and accessory! www.panelook.com

Global LCD Panel Exchange Center www.panelook.com 屏库:全球液晶屏交易中心



## 11. MECHANICAL CHARACTERISTICS



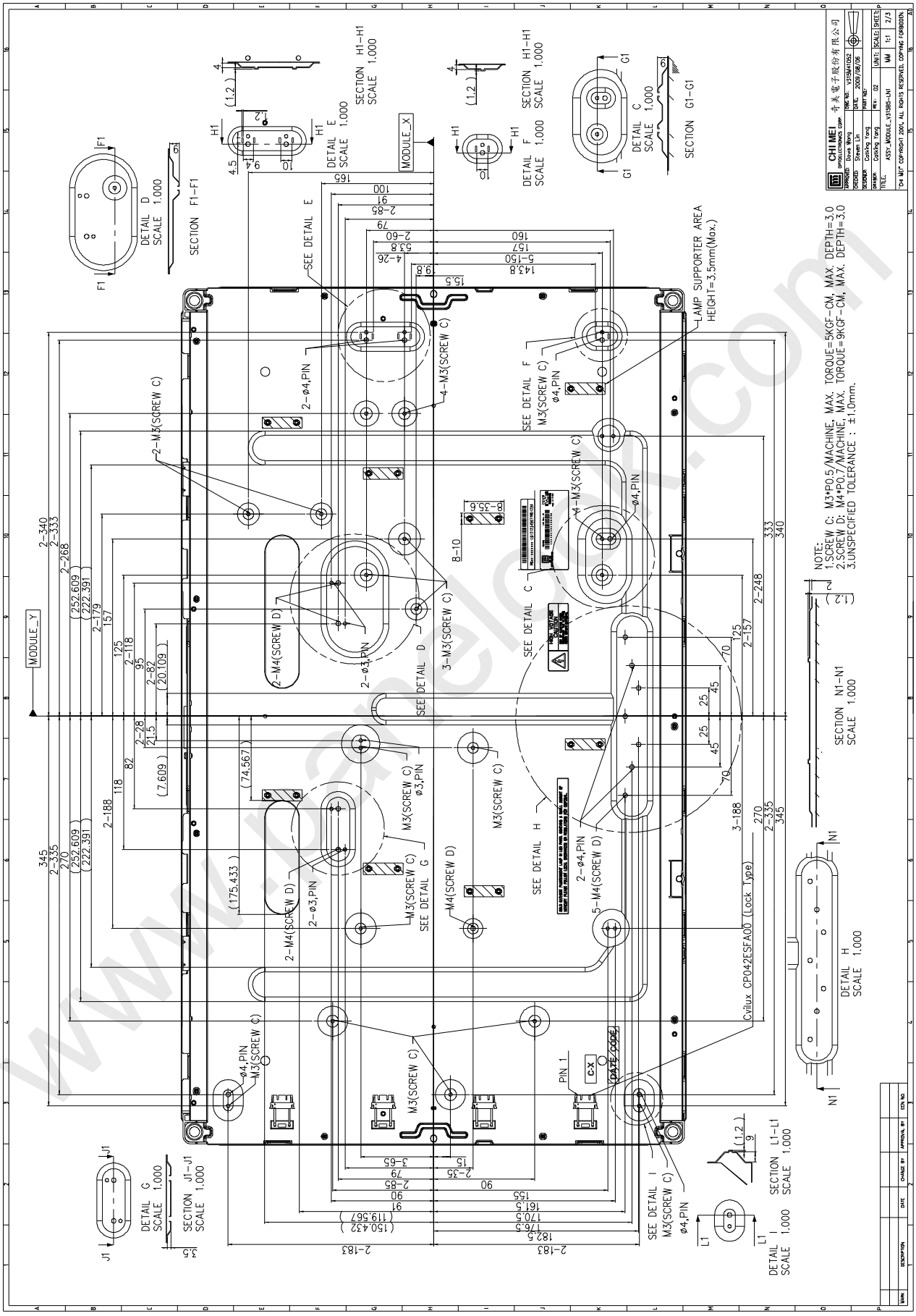

www.panelook.com



One step solution for LCD / PDP / OLED panel application: Datasheet, inventory and accessory! www.panelook.com

Global LCD Panel Exchange Center www.panelook.com 屏库:全球液晶屏交易中心



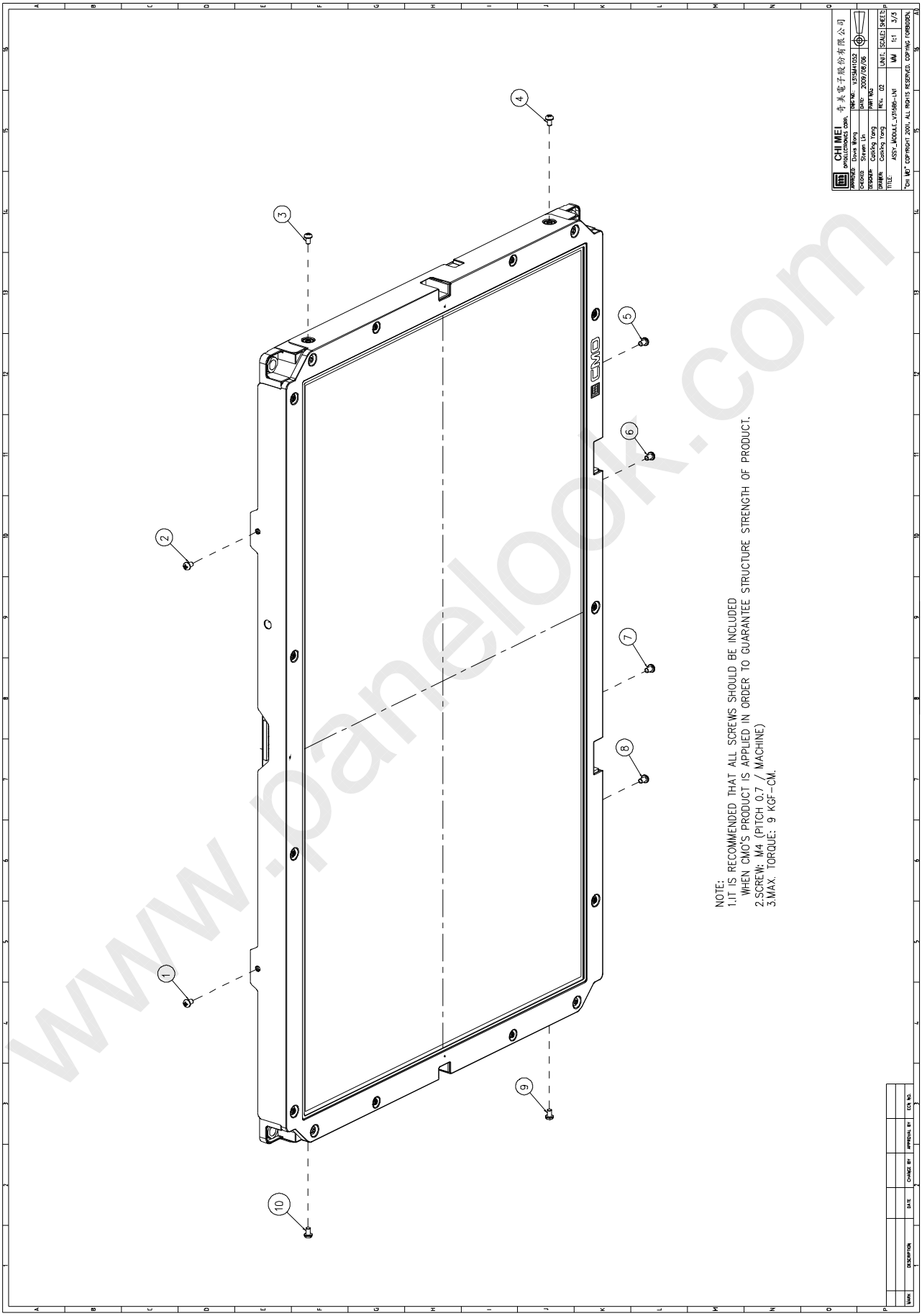





One step solution for LCD / PDP / OLED panel application: Datasheet, inventory and accessory! www.panelook.com

Global LCD Panel Exchange Center www.panelook.com 屏库:全球液晶屏交易中心






www.panelook.com



One step solution for LCD / PDP / OLED panel application: Datasheet, inventory and accessory! www.panelook.com